

DATE: September 17, 2009

TO: Marchant Schneider, Project Manager
Land Use Review

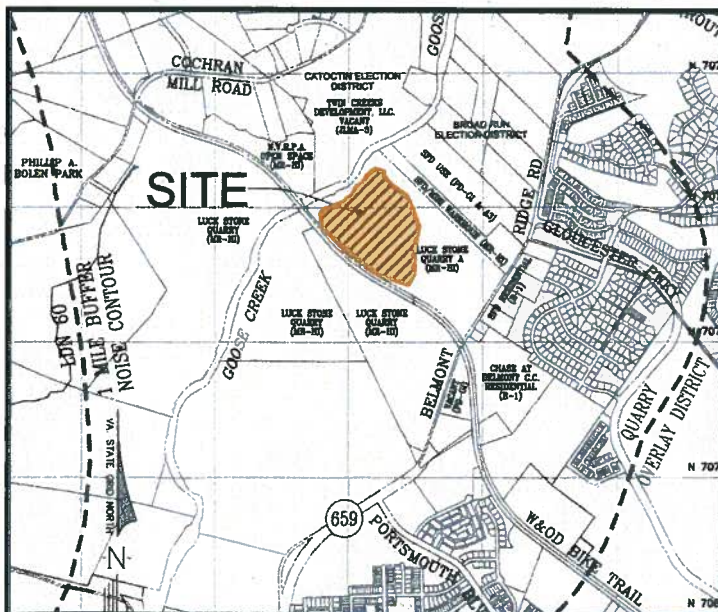
FROM: Joe Gorney, AICP, LEED AP, Senior Planner
Community Planning

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SUBJECT: SPEG 2009-0020 & CMPT 2009-0006, Loudoun Water Storage Facility

BACKGROUND

The Loudoun County Sanitation Authority (Loudoun Water) requests a Special Exception and a Commission Permit to use an existing diabase quarry for water storage in the MR-HI (Mineral Resource – Heavy Industry) Zoning District following the cessation of mining operations. The quarry totals approximately 33.77 acres and lies within a larger 80.61-acre parcel. The application area is coincident with the existing limits of the quarry pit. The remainder of the parcel would continue to be used for heavy industrial uses and is not part of the application. The site is within the Quarry Notification Overlay District associated with the Luck Stone Quarry.



The site is located on the north side of the Washington & Old Dominion Regional Park (W&OD Trail) between Belmont Ridge Road (Route 659) and Goose Creek. The quarry is known as Quarry A and is being actively mined by the Luck Stone Corporation. Mining operations are expected to continue until the 2017-2020 timeframe. A second quarry (known as Quarry B) is located on the south side of the W&OD Trail. A tunnel under the W&OD Trail connects the two

quarries. The principal access to the site is from Jackpit Lane, a private road, which connects to Belmont Ridge Road. The larger property is further bounded by Residential uses to the east of Belmont Ridge Road, a self-storage facility and associated single-family dwelling to the north, and vacant land to the west of Goose Creek.

The quarry is estimated to have a capacity of approximately 1 billion gallons of water. The reservoir would be surrounded by a 10-foot tall black, vinyl-coated, chain link fence topped with a double strand of barbed wire at the quarry edge. There will be no further disturbance of the site once mining operations have ceased. The plat also includes a provision for future improvements, which may include a pump station and the extension of utilities as by-right uses.

As an active mining pit, the Special Exception area does not contain any significant environmental features. County records indicate that the pit is adjacent to significant environmental features, including river and stream corridor resources, floodplains, wetlands, forest resources, steep and moderately steep slopes, diabase, and plant and wildlife habitats. A Scenic Creek Valley Buffer extends 200 feet from the channel scar line of Goose Creek onto the property. The Quarry Notification Overlay District exists on-site.

COMPLIANCE WITH THE COMPREHENSIVE PLAN

The subject site is governed under the policies outlined in the Revised General Plan. It is located within the Ashburn Community of the Suburban Policy Area and is designated for Extractive Industry uses (*Revised General Plan, Chapter 6, Suburban Community Boundaries Map, and Chapter 7, Planned Land Use Map*).

Specifically, the Industrial policies of Chapter 6 (Suburban Policy Area) and the Resource Extraction policies of Chapter 5 (The Green Infrastructure) of the Revised General Plan apply to the proposed development including quarry compatibility and reuse. The water and wastewater policies of Chapter 2 (Planning Approach) also apply.

The environmental features on the subject site were assessed applying the Green Infrastructure policies of Chapter 5 (The Green Infrastructure: Environmental, Natural, and Heritage Resources) of the Revised General Plan, including policies pertaining to river and stream corridor resources, wetlands, forest resources, steep and moderately steep slopes, diabase, and plant and wildlife habitats.

ANALYSIS

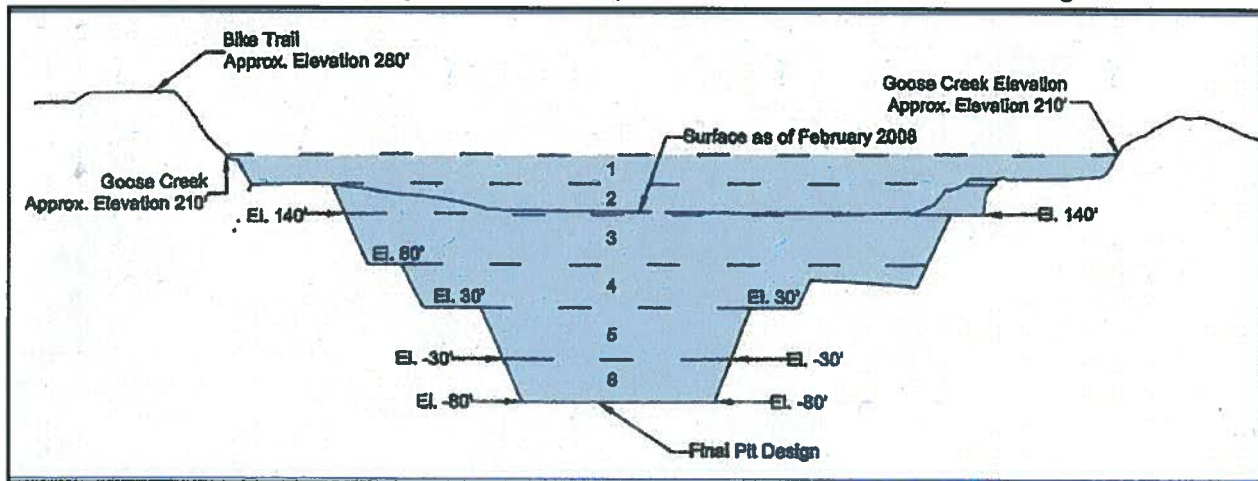
LAND USE

Resource Extraction

The proposed reservoir is located in an area designated for Extractive Industry uses (*Revised General Plan, Chapter 6, Suburban Community Boundaries Map, and Chapter 7, Planned Land Use Map*). The County seeks to accommodate the continued operation and expansion of industrial uses in the County and to provide a degree of protection for these uses from other land uses (*Revised General Plan, Chapter 6, General Industrial, text*). Specifically, the County will protect the Luck Stone Quarry from incompatible neighboring uses by ensuring that encroaching new development does not hinder the operation of the quarry (*Revised General Plan, Chapter 6, General Industrial Use Policy 12*).

Once resources have been extracted from these quarries the County may minimize the long-term result of diabase extraction by looking for ways to reclaim abandoned quarries for other uses (*Revised General Plan, Chapter 5, Mineral Resource Extraction Areas, text*). The County encourages the innovative and sensitive reuse of quarries and resource extraction sites (*Revised General Plan, Chapter 5, Mineral Resource Extraction Policy 8*).

The quarry is estimated to have an ultimate capacity of approximately 1 billion gallons of water, if filled to capacity. The applicant expects mining operations to continue through the 2017-2020 timeframe. The final pit design would be approximately 220 feet deeper than the current quarry floor and approximately 290 feet deeper than the elevation of Goose Creek. The following illustrative depicts the ultimate reservoir design.

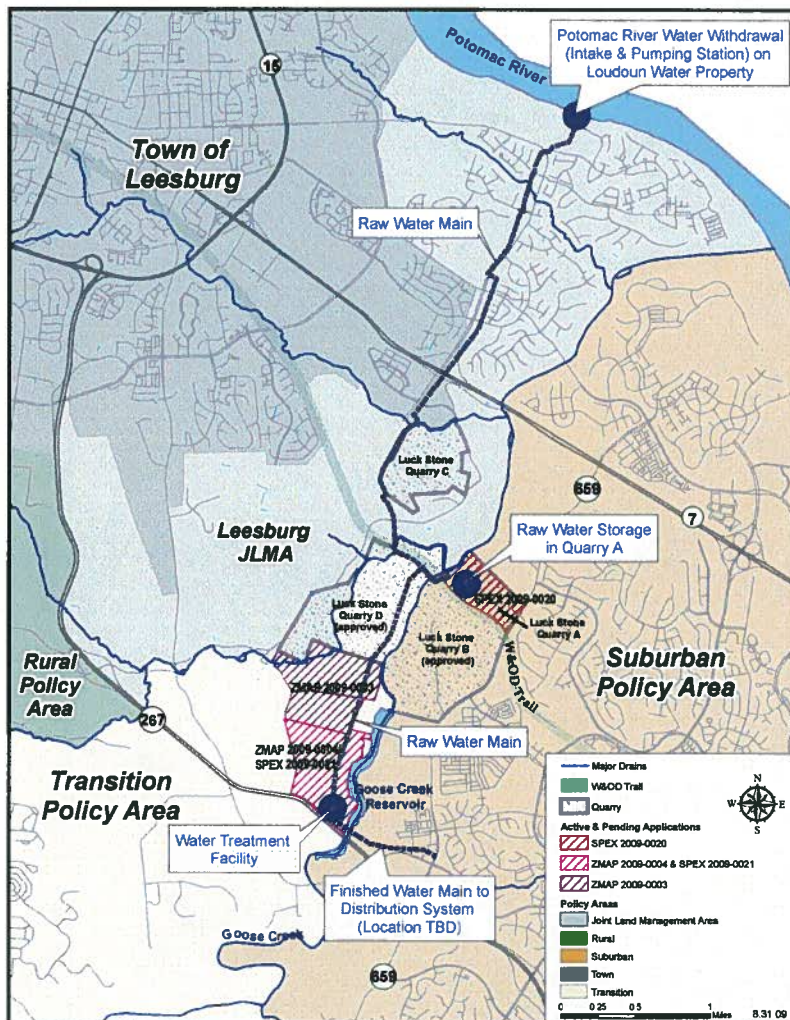


Illustrative Reservoir Cross-Section

The reuse of Quarry A as a raw water reservoir represents an innovative and sensitive reuse of the quarry and a compatible use within an industrial area as envisioned by County policies. However, several issues should be addressed as discussed below.

Water & Wastewater Service

County policies state that Loudoun Water will continue to be responsible for the provision and extension of public water and sewer service in the Suburban Policy Area and Transition Policy Area (*Revised General Plan, Chapter 2, General Water and Wastewater Policy 7*). The County will continue to rely on Fairfax City's Goose Creek Impoundment and the Fairfax County Potomac River intake as the major central water supply sources. For the Suburban and Transition Policy Areas, other water-supply options, including the existing Potomac River water plants operated by the Town of Leesburg and the Fairfax County Water Authority and the construction of its own water facility on the Potomac, may be considered (*Revised General Plan, Chapter 2, General Water Policy 2*).



Central Water Supply Program Illustrative

Additionally, the County, in cooperation with Loudoun Water, will develop long-range plans for wastewater treatment and water supply that establish criteria for siting future wastewater treatment facilities and impoundment sites. The County will pursue this effort according to the sewer and water policies of the Revised General Plan (*Revised General Plan, Chapter 2, General Water and Wastewater Policy 6*).

The application for water storage is part of Loudoun Water's Central Water Supply Program, a two-phased program to meet current and projected needs for the next 30 years by withdrawing raw, non-potable water directly from the Potomac River, storing it for future use in existing

quarries, and processing drinking water at a new water treatment facility, planned at the northwest corner of the intersection of Goose Creek and the Dulles Greenway. Staff notes that several applications have been received from Luck Stone Corporation and Loudoun Water regarding these facilities including a proposed expansion of quarry operations and the construction of the water treatment facility (ZMAP 2009-0003: Luck Stone Quarry; ZMAP 2009-0004: Loudoun Water and Luck Stone Quarry; and SPEX 2009-0021: Loudoun Water – Treatment Plant). While the current application accommodates approximately 1 billion gallons of raw water storage, Loudoun Water anticipates the opportunity to ultimately store up to 8 billion gallons of water in 4 quarries as part of the Central Water Supply Program.

The Statement of Justification notes that the reuse of the quarry as a reservoir is a water banking tool, whereby water is withdrawn from the Potomac River during times of normal to high flow and stored in the reservoir. During times of drought, the water is then withdrawn from the reservoir rather than from low-flowing rivers and streams. Currently, Loudoun Water buys water from Fairfax Water and the City of Fairfax. Fairfax Water draws water from both the Potomac River and the Occoquan Reservoir while the City of Fairfax draws water from the Goose Creek Reservoir.

Due to its depth, the reservoir would contain more water than a typical reservoir relative to its surface area, resulting in less evaporation for the amount of water stored. Additionally, due to the nature of the diabase rock and its ability to hold water without leakage, little leakage is expected into the surrounding area, which is also comprised of diabase. Currently, Luck Stone Corporation allows some surface flow into the quarry, which collects as a small pond within the quarry. Luck Stone then uses the pond water for dust control. Excess waters are pumped into Goose Creek with coordination with the Virginia Department of Environmental Quality (DEQ). The reservoir would fulfill its storage function while avoiding direct impacts to the nearby Goose Creek ecosystem.

Staff recommends that the applicant demonstrate a commitment to the withdrawal of water only during normal to high flows to help protect the integrity of the Potomac River.

GREEN INFRASTRUCTURE

The Green Infrastructure is a collection of natural, cultural, heritage, environmental, protected, passive, and active resources that are integrated into a related system. These resources include major rivers, stream corridors, floodplains and wetlands, reservoirs and impoundments, mineral resources, steep slopes, vegetated landscapes, wildlife habitats, scenic corridors, parks, greenways, trails, and recreational facilities (Revised General Plan, Chapter 5, Green Infrastructure Policies, Green Infrastructure Policy 1). The County uses integrated management strategies for the Green Infrastructure to ensure that all land use planning and development respect and preserve the holistic nature of the elements of the Green Infrastructure (Revised

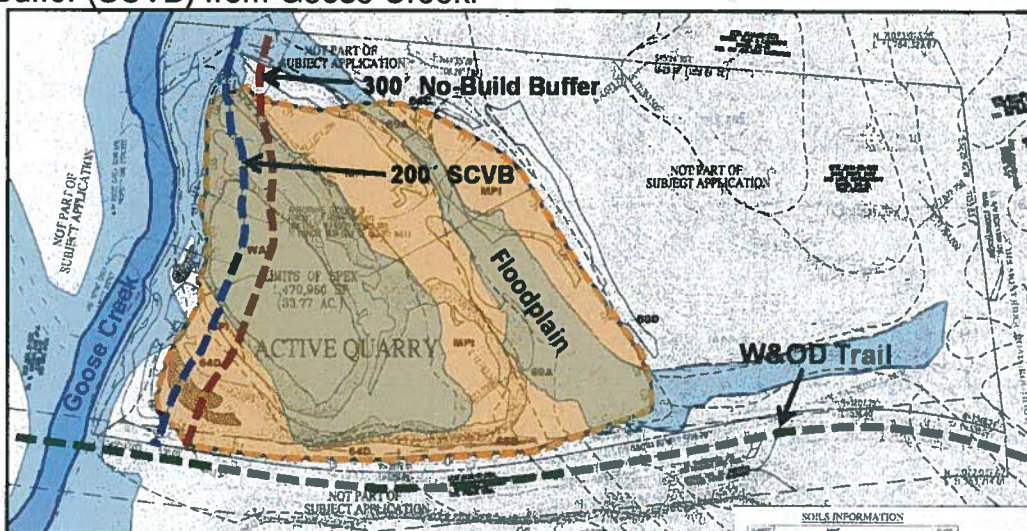
General Plan, Chapter 5, Green Infrastructure Policies, Green Infrastructure Policy 2). The Plan calls for all development within the Suburban Policy Area to incorporate designs that fully integrate elements of the Green Infrastructure (Revised General Plan, Chapter 6, Land Use Pattern and Design Policy 2).

The subject site contains Green Infrastructure resources including floodplains, mineral resources, steep slopes, and forest resources. The adjacent area includes a stream corridor, floodplains, wetlands, riparian vegetation, natural drainageways, forest resources, steep and moderately steep slopes, plant and wildlife habitats, and diabase rock. Green Infrastructure elements are discussed below.

River & Stream Corridor Resources

River and stream corridor resources, including streams, floodplains, and wetlands, are significant elements of the Green Infrastructure. The Plan calls for a 50-foot management buffer surrounding 100-year floodplains and adjacent steep slopes in order to protect the stream corridor from upland disturbance and adjacent development (Revised General Plan, Chapter 5, River and Stream Corridor Resources Policy 2). The Comprehensive Plan permits a limited number of uses in the stream corridor, including passive and active recreation, road crossings, pervious paths and trails, utilities and utility rights-of-way, public lakes and ponds, public water supply reservoirs, and planting native vegetation (Revised General Plan, Chapter 5, River and Stream Corridor Resources Policy 18).

The lip of the quarry and the limits of the Special Exception area are approximately 70 to 150 feet from Goose Creek. The applicant has depicted the limits of the floodplain on the plat, a 300-foot no-build buffer from Goose Creek, and a 200-foot Scenic Creek Valley Buffer (SCVB) from Goose Creek.



Proposed Plat

The relationship of the quarry to the Goose Creek floodplain is unclear. The depicted floodplain does not appear to match the topography of the area. Although Goose Creek is separated from the quarry by a steep embankment topped with an access road, which appears to act as a levee, the annotated floodplain cuts across the embankment. It is unclear when the embankment was constructed, its relationship to Goose Creek during flood events, and its impact on the floodplain boundaries.

Staff recommends that the applicant depict the limits of the floodplain on the plat so that floodplain accurately reflects the topography and hydrology of the area.

Scenic Rivers and Trails

Goose Creek is a "Scenic River" as designated by the Commonwealth of Virginia. The Scenic Rivers Program provides the river special status through legislative designation and aids in establishing appropriate protection and management standards to maintain their scenic value. The Goose Creek Scenic River Advisory Board, appointed by the Governor of Virginia, actively seeks to preserve the integrity of the river and its surroundings (Revised General Plan, Chapter 5, Scenic Rivers and the Potomac River, text).

The County will protect Scenic Rivers by defining a protection area as a 300-foot no-build buffer or the RSCOD, whichever is greater (Revised General Plan, Chapter 5, Scenic Rivers and Potomac River Policy 1). Also, the County will complete and execute a plan for acquiring and managing open space corridors along the County's officially designated Scenic Rivers (Revised General Plan, Chapter 5, Scenic Rivers and Potomac River Policy 3) and establish a strategy to expand passive recreational use of Scenic Rivers and the Potomac River. This strategy will be consistent with the overall Green Infrastructure policies and will prohibit ground-disturbing activities such as paved road and structure construction (Revised General Plan, Chapter 5, Scenic Rivers and Potomac River Policy 8).

Also, the Revised General Plan calls for the establishment of strict performance standards and best management practice requirements within County ordinances and regulations for Scenic Creek Valley Buffers (SCVBs) to address and satisfy the ecosystem, water quality, flood protection, habitat, and use objectives of the River and Stream Corridor Resources policies (Revised General Plan, Chapter 5, River and Stream Corridor Resources Policy 16). The SCVB is further defined by Section 5-1000 of the Zoning Ordinance and applies to areas adjacent to scenic rivers and all waterways draining more than 640 acres by providing a setback area from the channel scar line. It was created in part to promote water quality and the preservation of significant environmental resource areas, wildlife habitat and corridors, and native

vegetation areas and to implement the Comprehensive Plan (Revised 1993 Zoning Ordinance, Section 5-1001).

Additionally, the County envisions the construction of a series of trails and trail extensions as part of selected trail master planning efforts (Revised General Plan, Chapter 3, Parks, Recreation, and Community Services, text) including public access trails along designated sections of Goose Creek (Revised General Plan, Chapter 5, Scenic Rivers and Potomac River Policy 9).

The Washington & Old Dominion Regional Park lies approximately 20 to 50 feet from the quarry edge and the limits of the Special Exception. Additionally, the County Parks, Recreation, and Community Services Department (PRCS) is developing a system of interconnected linear parks along the County's stream valley corridors and envisions a trail along Goose Creek that would connect with the W&OD Trail. Visual access from the trails to the quarry would provide trail users with an open space amenity.

The applicant proposes the installation of a black 10-foot tall chain link fence with a double strand of barbed wire along the edge of the quarry wall. The applicant states that the fencing will provide security for the water supply, provide safety for the general public, and maintain full visibility of the reservoir from the W&OD Trail.

It would be desirable if the applicant would allow visual access to the reservoir from both the W&OD Trail and any future trails along Goose Creek or other portions of the Luck Stone property. The applicant should coordinate with Luck Stone Corporation, the County Parks, Recreation, and Community Services Department, and the Northern Virginia Regional Park Authority regarding visual access to the reservoir from the surrounding trails and the construction of an overlook along each trail, which could include benches and interpretive signage. Interpretive signage could alert people to the presence of the reservoir and explain the history of the quarry, the significance of the mineral resources and other surrounding natural features, and the basic design of the water supply system.

Vegetation

New central wastewater and water lines and facilities should be constructed in a manner that causes the least environmental risk and visual disruption. Disturbed areas (excluding permanent access easements to reach a facility) should be stabilized with native vegetation. New treatment facilities should be screened with trees, berms, and/or shrubs (Revised General Plan, Chapter 2, General Water and Wastewater Policy 12). Lands that are critical to the quality of key water supplies will be re-naturalized, if necessary, to restore filtration and erosion control functions (Revised General Plan, Chapter 5, Surface Water Policy 1).

Staff notes that the plat includes a provision for future improvements, which may include a pump station and the extension of utilities as by-right uses. However, these are not annotated on the plan. If these were to be built, they would likely extend beyond the current limits of the Special Exception.

The conversion of the existing quarry to a reservoir would limit the disruption to the area. To supplement the local habitat, help restore the quarry site, and to protect the water supply staff recommends that areas within the limits of the Special Exception not inundated with water be revegetated with appropriate indigenous vegetation. Staff recommends that any future improvements be constructed in a manner that causes the least environmental risk and visual disruption. Disturbed areas should be stabilized with native vegetation and new facilities screened with trees, berms, and/or shrubs.

Steep and Moderately Steep Slopes

The hazards associated with the disturbance of steep and moderately steep slopes include erosion, building and/or road failure, and downstream flooding. For these reasons, County policies call for a prohibition of land disturbance on slopes with a grade of more than 25 percent and special performance standards to protect slopes with grades from 15 to 25 percent. Performance standards include best management practices, locational clearances for clearing and grading, and avoidance of natural drainageways (Revised General Plan, Chapter 5, Steep Slope and Moderately Steep Slope Policies 1 & 3). Such consideration gives the County some assurance that steep and moderately steep slopes and their associated resources, such as surface waters, forests, and wetlands, will be protected.

The project area features numerous steep and moderately steep slope areas, which are depicted on the plat. The application does not appear to disrupt any steep or moderately steep slopes.

COMMISSION PERMIT

The County will determine the need for new public facilities and will identify suitable sites based on the Revised General Plan, appropriate area plans, land use, and growth policies (Revised General Plan, Chapter 3, General Public Facilities Policy 2).

In accordance with the Revised 1993 Zoning Ordinance, a Commission Permit is required when a public utility or public service facility is constructed to determine if the general location, character, and extent of the proposed use are in substantial accord with the Comprehensive Plan.

Staff finds that the general location, character, and extent of the proposed use is in substantial accord with the Comprehensive Plan and recommends approval of a Commission Permit for the proposed use.

RECOMMENDATION

The conversion of the quarry to a reservoir is in conformance with the general policies of the Revised General Plan. However, staff requests that the applicant address issues raised above so that the application can be fully evaluated for conformance with Plan policies.

Staff is available to meet with the applicant to discuss these issues.

cc: Julie Pastor, AICP, Planning Director
Cynthia Keegan, AICP, Program Manager (via email)